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DOCUMENTS

WINTER 1972

OUR PUBLIC LANDS

From the first time I saw this rock with my father. He told me "Say prayers and offer my prayer to the Great Spirit", which I think meant God. "You are a young man, you got a family now. So that you live good with your family even ask to live long time and reach to be an old man."

According to the traditions of my father this writting is true.

I give my permission to use my name and what I said.

Isa Talks Different,
Mary Talks Different — Witness

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The MEDICINE ROCK of MALTA

page 8

WINTER 1972
Vol. 22, No. 1

OUR PUBLIC LANDS

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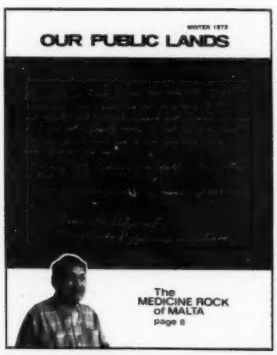

As the modern world presses in, today's Indian recalls where his father went to worship the Great Spirit.

U.S. DEPARTMENT OF THE INTERIOR
Rogers C. B. Morton, Secretary

BUREAU OF LAND MANAGEMENT
Burton W. Silcock, Director

As the Nation's principal conservation agency, the Department of the Interior has basic responsibilities for water, fish, wildlife, mineral, land, park, and recreational resources. Indian and Territorial affairs are other major concerns of America's "Department of Natural Resources."

The Department works to assure the wisest choice in managing all our resources so each will make its full contribution to a better United States—now and in the future.

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Jim Robinson, Editor

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HIGHLIGHTS

OCS Oil Lease Sale Yields Nearly $96.4 Million

The Department of the Interior accepted a total of $96,304,522.50 in high bonus bids for 13 offshore tracts offered in a drainage lease sale held in New Orleans in November. Two bids totalling $186,500 were rejected.

Average price per acre bid on accepted bids was $2,587.29. The total of all bids offered, successful and unsuccessful, was $172,735,980.60.

The sales money goes to the U.S. Treasury. Development of the leases also will yield one-sixth of the value of all oil and gas produced in the form of royalties to the Federal Government, plus annual rentals.

Citizens, Crow Indians Adopt Montana Wild Horses

Citizen groups and the Crow Indian tribe in Montana have adopted an excess number of wild horses on the Pryor Mountain Wild Horse Range this winter to prevent the animals from starving.

The plan was implemented by Interior Secretary Rogers C. B. Morton because there was not enough forage for the wild horses on the range this winter.

Wild horses cannot be fed hay or other feed supplements without losing their wild nature, so transplanting them to areas where sufficient forage is available has been worked out.

Animals subject to being moved were the 18 young horses foaled in 1971 who would be the first to die from starvation. Also some additional bachelor studs were transplanted to correct an imbalance between mares and stallions.

The plan was worked out with the cooperation of Bureau of Land Management's Montana State Office which has jurisdiction for the Pryor Mountain Wild Horse Range.

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Snoopy Joins Interior's Johnny Horizon Team

Snoopy, the lovable dog in the comic strip "Peanuts," has become a partner in the Department of the Interior's Johnny Horizon environmental program.

Snoopy's participation in the anti-litter and environmental protection program was announced in a small brochure authorized by Charles M. Schulz who draws the comic strip.

The brochure also displays Snoopy's feathered friend, Woodstock, who urges people to "Bend a little—pick up a lot." When fully opened, the brochure depicts Vulture Snoopy who demands, "Pounce on pollution."
(***Another picture, page 23.***)

Copies of the brochure can be obtained from any Interior agency, the U.S. Army Corps of Engineers, Tennessee Valley Authority, or by writing to the Johnny Horizon Coordinator, Department of the Interior, Washington, D.C. 20240.

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THE VEIL IS LIFTING

THE MAN came awake quietly but completely, as do men who live outdoors with danger ever present from large prowling animals.

He rose in a single lithe movement, his fur sleeping cover dropping away, to face the direction where his keen ear told him danger lurked.

Soundless though his movement was, it attracted the attention of his sleeping companions who waked and rose just as quickly.

The hunters' camp was one of many left by prehistoric men in Alaska. When archaeologists and anthropologists carefully sifted the evidence left by the hunters, the veil was lifted during the summers of 1970 and 1971 for a tantalizing brief glimpse into this past time.

Scientists generally agree that animals entered the North American Continent 100,000 years ago across a land bridge from Siberia. Doubtless they were migrating out of an environment to which they could not adjust. And men followed the game.

Migrating animals and men crossed Alaska in a general northwest-to-southeast direction. Their path crossed the 800 mile north-south corridor which is proposed as the path of a pipeline to transport crude petroleum from the Alaskan North Slope to the ice-free port of Valdez on the Gulf of Alaska.

Although it has not yet been determined if the pipeline permit will be granted and the pipeline built, the Bureau of Land Management is fulfilling the requirements of the Antiquities Act of 1906 by protecting antiquities sites on the public lands along the proposed path.

BLM has contracted with the Arctic Institute of North America to provide expert consultation and to inspect

". . . Fascinating glimpses of primitive man's expert adaptation . . ."

sites believed to have antiquities values. AINA's team of anthropologists and archaeologists have spent two summers excavating appropriate sites along the proposed pipeline corridor.

Chairman of the internationally renowned authorities is Dr. Elmer Harp, Jr., of the Dartmouth College Department of Anthropology. Members are Dr. Helge Larsen, curator of the Danish National Museum; Dr. Robert McKennan from Dartmouth College; Dr. Henry B. Collins of the Smithsonian Institute's Bureau of Ethnography; Dr. John M. Campbell of the University of New Mexico; and Dr. W. E. Taylor, Jr., now retired from the National Museum of Ottawa.

The following information has been abstracted from Dr. Harp's report concerning the 1971 summer field investigation of antiquities sites along the proposed pipeline corridor:

"Report on field trip to Alaska for consultation on Alyeska pipeline archaeological salvage operations and general evaluation of related projects from 19 July through 5 August, 1971.

"Friday, 23 July: Departed Fairbanks at 0930 hours . . . Landed Galbraith Lake strip at 1200 hours and was immediately ferried by helicopter (from Happy Valley) 5–6 miles eastward to Atigun Canyon archaeology camp . . . Set up personal sleeping tents for prolonged stay, and later inspected excavations (in progress) in Sites B–15 and B–58."

(Dr. Harp participated in excavating Site B–58 July 24 through 27. About the work, he wrote:)

". . . Explored eastward down the Atigun Canyon and discovered a small Denbigh Flint Complex site on the surface of a high knoll about one mile distant from camp. . . . I judge (it) to be unworthy of intensive investigation; however, it might well be checked again and surface-collected if the pipeline is finally extended along this route.

"Wednesday, 28 July: En route Atigun Camp to Prudhoe Bay with Larsen. Lifted by helicopter to Happy Valley Camp. Unfortunately, due to rain and very poor visibility, we could not observe the Gallagher Flint Station site (S–10) on this low-level flight, which otherwise afforded enlightening views of the Atigun and Sagavanirktok valleys and various site areas. Held over at Happy Valley Station until late afternoon when weather cleared in Dietrich Pass and BLM surveillance plane came through from Fairbanks to lift us to Prudhoe. Satisfying low-level inspection flight down Sagavanirktok River . . . arriving Prudhoe Bay at 1700 hours."

(Dr. Harp then participated in excavating Site Prud-1 at Prudhoe Bay with Dr. Larsen on July 29 and 30.

(He crisscrossed and backtracked along the proposed corridor several times, arranging to confer with professional colleagues enroute. The remaining material is quoted directly from his report:)

"Notes on the field archaeology: It is a pleasure to report that the archaeological salvage projects on the pipeline route are being completed with proficiency and vigor, and all field work has been done in a highly professional manner. Excavation procedures are meticulous and accurate, and cultural data have been retrieved and preserved with virtually no loss. The caliber of this work continues to satisfy the excellent standards that we noted in the preliminary report on Archaeological Survey and Excavations, published in December 1970 by the Department of Anthropology at the University of Alaska.

"Site B–15: The excavation of this Denbigh Flint Complex component, situated on the southeast bank of the Atigun River at the point where it turns abruptly northeastward into the canyon, was virtually complete by the time of our arrival. This work added substantially to the artifact assemblage previously collected from the surface, and the cultural identity of the site is now quite

certain. Cook's (Dr. John Cook, University of Alaska) age estimate of c. 2000 B.C. is reasonable.

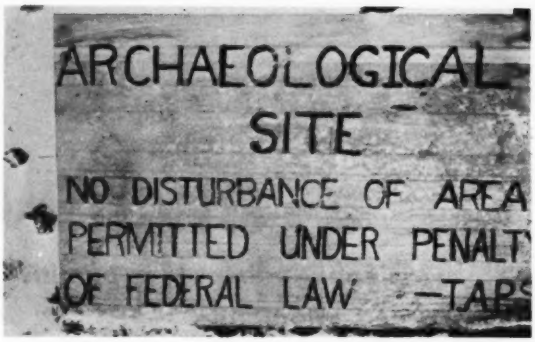
"This same site, or comparable expressions of the same occupation, seems to extend southward for some distance along the (route of the proposed) pipeline right-of-way. These should be carefully checked and, at the very least, surface-collected by surveillance archaeologists if pipeline construction passes through this area. This kind of continuing salvage archaeology should not necessarily impede construction work on the line, as it can be pressed forward in a vanguard action.

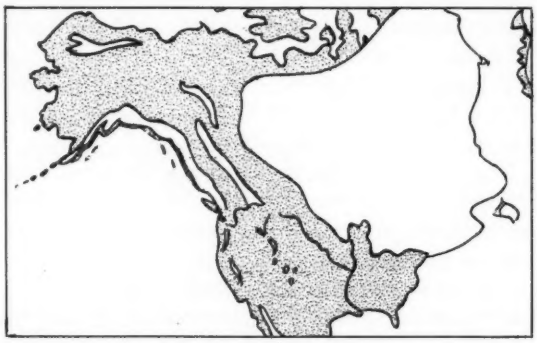
"Site B–58: Situated on the south bank of the Atigun River at the western end of the canyon, about one-half mile east of Site B–15, this site has produced a most interesting and valuable array of evidence relating to the late 19th century contact period. The 1971 field season richly enhanced the assemblage of artifacts obtained in 1970, including both aboriginal Eskimo specimens and trade goods from the historic era, and excavation of 3–4 more of the pole-framed moss houses has furnished additional interesting architectural information. The site has been positively identified as Nunamiut Eskimo and, on the basis of numerous brass cartridges and percussion caps, it has been closely dated to A.D. 1880.

"Altogether, two seasons of painstaking excavation in this component have yielded important new data concerning the culture and geographical spread of the inland Nunamiut people, and all major features of the site that lay in jeopardy (if the pipeline is constructed) have now been throughly investigated. The final report on this particular operation . . . will surely stand as one of the more important contributions from the ALPS (Alyeska Pipeline System) salvage archaeological program . . .

"Site Prud-1: This site is located on the southeastern shore of Prudhoe Bay, about 200 yards northeast of the main Prudhoe Bay dock and storage pad. The 1971 excavations prove it to have been a quite recent occupation, probably no more than 50 years old, but this fact does not lessen the significance of the investigation. There may well be important lessons to be learned here for Arctic archaeologists.

"Whereas the Atigun River Nunamiut site (B–58) exemplifies the beginning of the historic period of contact between Eskimos and Whites, Prud-1 has yielded considerable evidence of advanced acculturation. Given the plentiful incidence of both aboriginal and modern artifacts in Prud-1, including many specimens of organic materials, here is a rare opportunity to evaluate





If hunters crossed the Siberian land bridge into Alaska 40,000 years ago, they occupied a land relatively free of extensive glaciers.

the accuracy of archaeological interpretation vis a vis the statements of living informants.

"I understand that at least one Eskimo woman who dwelt on this site some 40–50 years ago is still living at Port Barrow, and her relation of the life-style at Prud-1, if obtained in time, could be a most enlightening basis for comparison with the field archaeologist's historical reconstruction. As this local investigation is expanded outward to Heald Point, older sites may be found.

"Although such discoveries are not immediately related to pipeline activities, they are indeed affected by present and future work in the primary drilling area, and they should be properly excavated.

"Final Remarks: This was a most valuable and enlightening expedition, and we now have a better than superficial acquaintance with the problems of salvage archaeology along the proposed pipeline route.

"I have been most favorably impressed by general field operations. All of the construction camps I visited showed clear evidence of a 'taut ship,' and one could easily observe that careful measures are being taken to minimize environmental contamination and upset.

". . . special commendation for the full support . . . given to the field program of salvage archaeology (by the oil companies group), and in my judgment (the group) has done its best to abide by the BLM stipulations regarding antiquities and historical sites.

"In this respect, both BLM and ALPS are performing a very great service for the general cause of American archaeology . . . The strict emphasis on the need to investigate and preserve our national antiquities is laudable in itself, and this Alaskan case might well serve as a model for future cooperation in such matters between agencies of the Federal (or State) government and private enterprise.

"Even as the costs of pollution control and environmental maintenance must be borne by private enterprise and passed on to the ultimate consumer, so should this kind of archaeological salvage work be subsidized. Also, as new country is opened to settlement and tourism through construction of the pipeline and its supporting highway, it is possible that some of these prehistoric sites may have recreational and instructional value for a larger public.

"The cultural remains of aboriginal Arctic peoples are not usually monumental or spectacular, but they afford fascinating glimpses of primitive man's expert adaptation to these severe northern environments, and they can have great educational value.

"Undoubtedly the most important aspect of this archaeological project derives from its linear geographic spread across the State from the Beaufort Sea to the Gulf of Alaska. The New World was originally occupied by hunters who passed from northeastern Siberia across the Bering land platform into Alaska, beginning perhaps as early as 40,000 years ago, and as their descendants spread farther eastward and southward through ensuing generations and centuries, they had perforce to cross through country now transected by the (proposed) pipeline route. Hence, we have here a unique and most remarkable potential cross section of all these early cultures.

"This is not to say that all such primitive roving hunters had sufficient foresight, for our purposes, to camp directly on the pipeline right-of-way, but obviously many did so for other reasons, and students of New World prehistory will continue for many years to reap benefits from this pipeline transect. The actual surveying and construction operations, as well as the new road system, give us ready access to a wide band of country athwart Alaska, and I personally consider this to be the greatest spin-off advantage for our science.

"Finally, the entire pipeline project constitutes for us a noteworthy arena for the field-training of young archaeologists. A number of them have already benefited from the fieldwork opportunities of 1970 and 1971, and presumably similar chances will exist for the next several years. This is a distinct contribution to the causes of advanced education.

"I have already mentioned the need for continuing archaeological surveillance, but this point deserves final emphasis. So far, the construction camp sites, the main borrow-pits, and the staked pipeline route have been thoroughly surveyed. However, all trenching operations and further excavation of gravel sources should be monitored closely, as they may occasionally expose other prehistoric habitation sites which are not identified by surficial evidence. Also, it will be of utmost importance to monitor all road-building operations, particularly in areas where the tote road will diverge widely from the pipeline route. In such cases, important discoveries may be made in country that has not yet been archaeologically explored.

"In brief summary, I am well satisfied with the quantity and quality of progress made to date. All parties involved in this project appear to be cooperating fully and genuinely, and I trust the services of our advisory committee will continue to be of value."

Thus the veil indeed is lifting, affording a glimpse into how prehistoric Alaskans adapted to the severe northern climate. The exporations are far from completed yet. The future may hold even more exciting revelations about man's past on the public lands. □

The MEDICINE ROCK of MALTA

Ira Talks Different remembers

ON THE lonely prairies of northeastern Montana, north of the Missouri River, lie many boulders left there when the last glacial period ended about 12,000 years ago. The carvings which cover some of these boulders are the most enduring evidence of the religious faith of early inhabitants of this broad land.

A dozen or more of these so-called medicine rocks are in the Bureau of Land Management's Malta District in the Phillips Resource Area. These medicine rocks played an important role in the lives of the Plains Indians and their pre-historic ancestors. The writings and symbols painstakingly incised into the boulders have not been interpreted by modern man, but it is almost certain that ancient American Indians revered these writings and performed some of their religious ceremonies there.

In the spring, when the grass was green and all things fresh, families would come from far away to offer their worldly goods and chant their prayers. The Indians would ask the Great Spirit, through the rock, for certain blessings: A safe journey, happiness in marriage, good health, or a successful hunt.

Before going on the warpath, the warriors would stop and offer their devotions; coming back they would offer a portion of their spoils of battle and pray for their fallen comrades. The prayers were not to the rock itself, but through the rock to the one who placed it there.

One of the most famous of these boulders is Indian Lake Rock, a granite mass located about 14 miles north of the Missouri River and southeast of the Little Rocky Mountains, 50 miles south of Malta on the public lands. This boulder measures 12 feet by 9 feet and projects 3 feet above the surface of the ground.

The top is essentially flat, and the surface area is large enough so that prehistoric artists would have had to climb up on the rock in order to work some of the petroglyphs, or carvings, in the stone.

Petroglyphs cover the boulder on the top and most of the sides. Many of the drawings are not easily seen because weathering and action of lichens have eaten away much of the markings.

The primary use of the area is for grazing leases, and several reservoirs provide excellent fishing and waterfowl hunting. No more do Indians roam freely; the medicine rock is little seen except by hunters and fishermen.

John Talks Different, an early day Assiniboine, was one of the last to make the effort to go each spring to pray at the medicine rock. He explained the glyphs in these words: "It is the Rock that writes—the writing appears on the rock by itself." Others have described the rock in this manner, "Every time you look at the rock, you see something different."

As far back as the Indians can recall, they have not reworked the glyphs or painted the rock. According to Ira Talks Different, an Assiniboine from Fort Belknap Indian Reservation and the son of John Talks Different, the Indians would place their hands on the rock while in prayer as though to gain strength through the rock. Their hands rubbing on the rock prevented lichens from becoming too firmly attached.

The son recalled his early memories of the medicine rock: "From the first time I saw this rock with my father, he told me, 'Say prayers and offer my prayers to the Great Spirit,' which I think meant God. 'You are a young man, you got a family now. So that you live good with your family, even ask to live long time and reach to be an old man.'

"According to the traditions of my father this writing is true."

The petroglyphs have endured where most other artifacts of prehistoric cultures have been disintegrated by the elements. Pictographs, which are paintings on stone, have survived the elements where they were done on overhanging shelves and in caves, but the laboriously produced petroglyphs display to fine advantage the patience and attitudes of primitive man.

Modern man would find it hard to understand the patience of a primitive who heralded the birth of a

By LEE C. CHAMBERLAIN
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John Talks Different

son by devoting long hours to chiseling the event pictorially into a granite boulder, thus recording it for all history.

Man used pictures to record memories long before he had a written language. The life of primitives was filled with symbolism and mysticism. Puberty rites required fasting and deprivations which probably brought on visions, later to be recorded in the rocks and used as objects of prayer and devotion.

The older glyphs on the medicine rock near Malta are difficult to see. Dissolving minerals in the boulder deposit a patina which is known as desert varnish. This film obscures without erasing the carvings. By carbon dating the desert varnish, it has been established that some of the Northern Plains petroglyphs may be as old as 8000 B.C.

Among the more easily seen signs and symbols on the medicine rock are representations of clad feet, bird tracks, hooved feet, and directional indications perhaps inscribed to act as highway markers. This may have been intended as an aid for the nomadic Indians seeking the location of game animals and good crossings of the Milk and Missouri Rivers.

The bison, a most important meat animal, are depicted, but the horse is seldom seen among old petroglyphs, perhaps because the Indians did not have horses until Coronado's appearance in the southern part of the Great Plains in 1541.

Rising abruptly out of the prairies to the west of Indian Lake Rock are the "Prairie Islands," the Little Rockies and the Bearpaw Mountains. These mountains of the prairies were used as landmarks by the Northern Plains Indians. The Little Rockies can be seen by climbing on top of the Indian Lake Rock. In the Little Rockies are caves that provided shelter to early travelers, and on many of their walls are drawings and pictographs.

North of the Little Rockies is a low-lying igneous intrusion called Snake Butte. Here there are a number of boulders with petroglyphs carved into their surface. The questioning observer is tempted to ponder if all of these drawings and writings are related.

Geologic evidence supports the belief that prehistoric man migrated to North America across a land bridge that existed between Asia and North America as much as 100,000 years ago. (See "The Magic of Antiquity," Our Public Lands, Spring 1971.)

Archaeological explorations trace the migrations through various parts of the continent, but too many pieces of the puzzle still are missing. Where primitive agriculture was practiced, burial mounds yield evidence of cultural progress through the recovery of weapons and cooking vessels. However, where nomadic influences prevailed, villages were used for only short periods and the carvings and pictures on rocks are the strongest evidence of culture available today. Modern men, for all their sophistication and technology, have developed little of the scholarship necessary to translate and interpret these petroglyph clues to the past.

It seems reasonable to acknowledge that the tremendous distances would have created wide differences in the cultural progress of peoples in the extremes of North and South America. Yet great civilizations flourished on both continents: The North American Indians, the Maya culture of Mexico and Central America, the Chibcha and Chorotega of the Northern Andes, and the Nasca and Chimu of the Southern Andes.

How close was the communication between ancient peoples of these vast lands? What tie exists between the great civilizations of South America at the time of Christ and the Mound Builders who built their cities east of the Mississippi River as early as 1000 B.C.?

In recent years, there has been little interest among American Indians in the medicine rocks. What was important to people of the past seems to have lost its value to the people of the present. Only a few seem willing to treasure these graphic links with ancient man, to unlock the secrets they display.

The Medicine Rock of Malta has rested in the prairie for centuries. It will be there for a long time and, perhaps someday, scholars will penetrate its written record of the marks of primitive men. □

Reunion at Fairview Cemetery

The end of a 64-year search

IN THE haze and rising heat of Nevada's desert morning, John Jaattela, Jr., walked among the weathered headboards marking the Fairview Cemetery. At 73 years of age, this was the end of a long search. He had found his father's grave at last. Pausing by the brush-covered mound, he removed his hat and stood in prayerful silence.

After a moment he replaced his hat and began to tell of the long search that brought him to his father's final resting place. "I was nine years old when I saw my father for the last time," said John Jaattela, Jr. "He and his partner, John Weikel, left the Finnish Colony in Hibbing, Minn., to go prospecting in British Columbia."

Eventually they came to Fairview, Nev., in Churchill County some 100 miles east of Lake Tahoe. During the height of its boom in 1906–1907, the town had a population of nearly 2,000 people, a mercantile store, bank, newspaper, post office, and 27 saloons.

John, Jr., warmly remembered the gifts and letters his father sent home to his family who were caring for the farm. He recalls to this day the grief he felt when Weikel notified the family of his father's death at Fairview. Stricken with appendicitis, his father had died at 9 a.m. on May 20, 1907, and was buried in the Fairview Cemetery only six hours later.

As the years passed, John, Jr., wondered about his father's gravesite and two years ago, when he was 71 years old, he determined to find his father's grave so his mind could be at rest. In July, 1969, he began the search. He traveled with his wife, Segrid, and son-in-law and daughter, Bill and Thelma Houvila, to Nevada. At Fairview, they discovered the former boom town had all but disappeared—only the bank vault remained. The cemetery could not be found, and the Jaattelas returned to their home in Grayland, Wash.

Next month Thelma Houvila prepared a letter about her father's search and mailed it to the Bureau of Land Management, Fallon, Nev. In error, the letter was sent to the Forest Service District Ranger's Office in Fallon. Georgia Hiatt, Secretary at the Ranger's Office, opened the letter by mistake, then called BLM's Carson City District Office which administers public domain land in the vicinity of Fairview. Although records were available on mining claims, none showed either townsite or cemetery.

Mrs. Hiatt's father had driven horse-drawn freight wagons from Fallon to Fairview during the 1907 boom, and she became intrigued with the search. She learned much about Fairview from her research and by talking with pioneers of Fairview, but generally no one who lived there could remember a cemetery.

Fairview pioneers were sure there wasn't one, or said the few people who had died were buried in Wonder, another mining town nearby. One promising lead said the cemetery was located along the powerline and wagon road between Fairview and Wonder. But since the power poles were cut down years before and numerous roads streaked the area, it was impossible to find the route. All searches of the area were unsuccessful.

In February, 1970, Ranger Pierson tried a spiral search pattern on horseback. Using the Fairview bank vault as a reference point, he rode in an ever-widening circle marking his locations on a BLM aerial photo. On the foothills east of the Fairview site, he spotted what appeared to be the cut off stump of a power pole. It was, and looking in the immediate area he saw what looked like a headboard lying flat in the brush. The Fairview Cemetery had been found at last.

Further investigation showed the cemetery to be a 10th acre of public domain land cradling 14 brush-covered mounds, 8 marked by flattened headboards. John Jaattela, Jr., was told of the discovery, but because of farm work could not make the journey to Nevada until August 17, 1970. On that date at 7:30 a.m., Ranger Pierson, Mrs. Hiatt, Pat Stevenson, reporter for the Fallon Eagle-Standard, and the author took John Jaattela and his family to the Fairview Cemetery and witnessed a once-in-a-lifetime moment. □

By MARK E. LAWRENCE, JR.
Range Conservationist
BLM District Office, Carson City, Nev.

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POWER COMES but the VIEW STAYS

Old power poles will be removed; trench scar will heal.

THE VIEW of the Snake River and the rugged Sawtooth Mountains beyond is beautiful from the public lands on the top of Cotterel Mountain. Cotterel Mountain is a small mountain range about 20 miles southeast of Burley, Idaho. For the first time in more than 10 years, no power poles or powerlines obstruct this view. The only evidence of the powerline that remains is the trace of a 6-inch-wide trench running down the mountain. In about 2 years, even the scar will be grassed over and no longer noticeable.

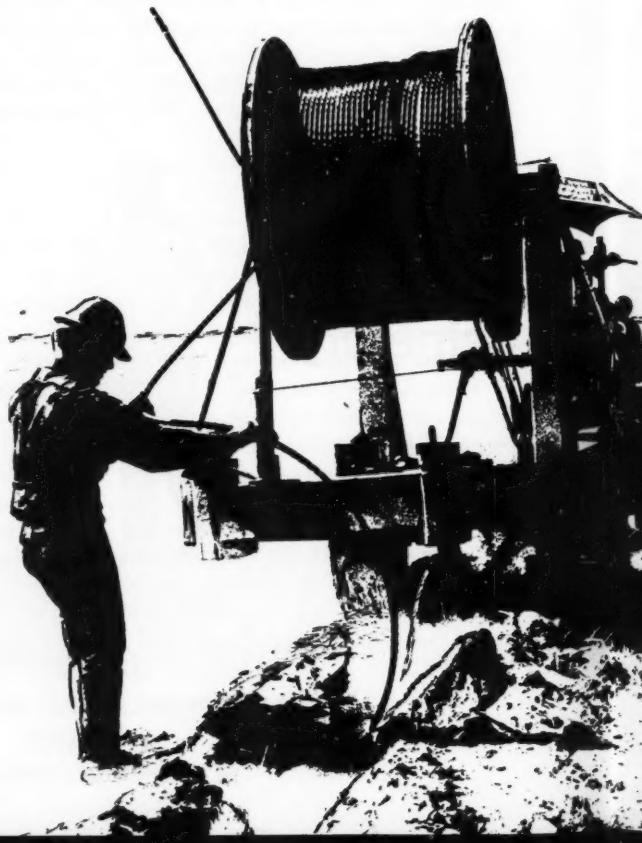
This improvement was made possible when Raft River Electric Co-Op Inc., of Malta, Idaho, decided to alter traditional overhead lines by going underground on an experimental basis.

Now, after five projects and more than 17 miles of underground line, the latest of which is the nearly 5 miles across the top of rugged Cotterel Mountain, Raft River Electric feels buried powerlines have a definite future.

As Boyd Booth, Line Foreman for Raft River Electric, says, "Although still experimental, the public likes

By LEWIS O. MARTINDALE
Raft River Resource Area Manager
and
ROBERT J. BROCK
Magic Resource Area Manager
BLM District Office, Burley, Idaho

Raft River Electric eliminated overhead by going underground



the idea of hidden lines and there are places where we find it difficult to keep overhead lines in service."

Raft River Electric had to take into account several considerations before a decision was made whether to transport power by overhead lines or underground cable:

- Amount of power to be wheeled.
- Installation cost.
- Future maintenance costs.
- Aesthetics and watershed damages.

The utility has buried both single-phase and 3-phase lines. The single-phase lines carry 7,200 volts and the 3-phase up to 24,900 volts. Neither line has lost any significant amount of voltage by going underground.

Material costs for overhead single-phase lines are about $840 per mile. To carry 3-phase power, only additional wire is needed with no additional poles or hardware. Material costs for underground cable are $1,343 per mile for single-phase power. For 3-phase power this figure is tripled because three lines are required.

While material costs can be predetermined, installation costs for overhead line vary greatly, however, depending upon terrain. An installed single-phase line, including material, will run from $1,800 per mile on flat ground with little rock to more than $2,200 per mile on steep, inaccessible terrain that is rocky.

One of the first underground projects undertaken by Raft River Electric was across flat, rocky ground. Due to rental equipment, lack of experience, breakdowns, and weather conditions, the project cost more than $3,000 per mile, including materials. However, in the most recent projects on Cotterel Mountain, using company equipment and with three other projects under their belt for experience the cost was $2,200 per mile, including materials. Raft River Electric feels that due to the extremely rocky conditions and steep terrain, this was actually less expensive than an overhead line would have been.

The trenches on all projects in rocky soils are preripped with a D–8 size tractor using a large ripper tooth before any line is laid. The next pass with the ripper opens the trench and the line is laid at least 30 inches deep. In rock free soils, no preripping is needed.

Engineer Golden Gardiner feels that now that Raft River Electric has gained experience and owns its equipment, a single-phase underground line will be no more expensive than overhead line.

Future maintenance costs for underground power lines appear to be the big selling factor as far as Raft River Electric is concerned. Although the underground lines have not been in use long enough for a real test, the utility feels that the maintenance will be nil if the lines are properly installed. The only problems to date have been some minor vandalism and a burnout due to improper installation.

This is not the case with overhead lines. Poles and crossarms require routine checking and continual maintenance. Summer lightning storms and winter icing create a constant maintenance problem in higher elevations. These two factors alone convinced Raft River Electric to convert its overhead line on Cotterel Mountain to an underground installation.

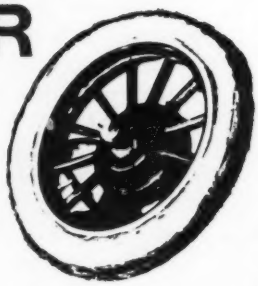
Of great importance was the consideration of aesthetics and watershed damages. Both of these factors affect not only the image portrayed by the power company but the goals set by the Environmental Policy Act as well. Raft River Electric believes underground lines maintain the aesthetic value of an area with no powerlines to obstruct the picturesque view of the otherwise open space areas. There are no steep maintenance roads scarring the landscape, which is subject to erosion.

The utility has invested more than $20,000 in specialized equipment and is proud of its work. At this point utility officials feel single-phase lines are good investments to go underground.

Bud Tracey, work order accountant for Raft River Electric, says, "We haven't solved all the problems of burying 3-phase power yet but, with improving technology and equipment, I'm sure it will only be a matter of time."

Raft River Electric, a small company servicing only 1,700 customers in south central Idaho and corners of Utah and Nevada, has pioneered underground powerlines and feels they are here to stay. □

THE LAST BARRIER



Crossing the desert by early automobiles

THE TRAVELER crossing the Imperial Sand Hills on U.S. Highway 80 between Yuma, Ariz., and El Centro, Calif., occasionally will glimpse a piece of rusted scrap iron bent upward from weathered boards that are partially covered by sand.

The 6-mile crossing of the dunes will take only a few minutes now but, not many decades ago, the journey could last for hours. The scrap iron and the boards *were* the road, and crossing the dunes then was a perilous journey.

The peril was discussed in El Centro's newspaper on April 27, 1919, under the headline, "Avoid Plank Road, Warning to Autoists." The story said in part:

"Several cars which recently attempted the trip were badly damaged and the owners were put to heavy expense to get through. Cars were injured in the drive, engines are racked and shattered, and in many cases the machines have to be pulled many miles by teams.

"Another phase of the warning is the danger of suffering and death to people. As there is no travel over the road, parties attempting it suffer from thirst and are sometimes in danger of death, as there is little chance of succor arriving unless a call for aid reaches Holtville or Yuma."

The dunes are derived from beaches of prehistoric Lake Cahuilla, a huge fresh water lake that occupied the Salton Sink (Imperial Valley) between A.D. 900 and A.D. 1400. The lake was formed when silt from the Colorado River dammed the stream at the head of the Gulf of California and the water backed up.

By TOM EVANS
Information Specialist
BLM State Office, Sacramento, Calif.

Lake Cahuilla occupied 15 to 20 times the present area of the Salton Sea and was more than seven times as deep. As the Colorado River channel cut deeper and the current became swifter, the silt washed out into the Gulf and Lake Cahuilla was drained.

The ancient beach line from which the sand came lies from 3 to 18 miles west of the dunes. Prevailing westerly winds have pushed the sand up the slope of the foot of the Chocolate and associated mountain ranges. The dunes run for about 38 miles in the United States and 4 miles into Mexico, and they reach an elevation of 567 feet above sea level at the summit. However, some places in the Imperial Valley floor are below sea level.

A comparison of modern maps with John C. Fremont's 1848 Continental Telegraph Survey shows the sand hills have changed little in the last 123 years.

The 200 square miles covered by the dunes are public domain except for 4½ State school sections. Much of the land has not been covered by cadastral survey and might never be because of monumentation difficulties.

The dunes were long a barrier to human passage. Along with parched plains, impenetrable mountains, and unfordable streams, the dunes were factors in the decision to ship cargoes and supplies from the eastern seaboard's populous cites to the Pacific coast via merchant vessels.

In the days of sailing vessels the merchant fleets long bore the brunt of shipping supplies to California until restless immigrants to the West opened up the overland trails.

One such trail, the Santa Fe, trekked southerly from the Missouri River nearly 1,000 miles, only to end in the Plaza at Santa Fe, N. Mex. The desert was the last barrier to be conquered.

Spanish and American pioneers did cross the sand hills of California's Imperial Valley with mules and horse pack trains, but wagons and stage coaches still had to detour into Mexico around the southern end. This

barrier to commerce in the south persisted long after the State was opened up by the early pioneers and gold seekers.

California's history on the eve of the 20th century was influenced by several factors, each interrelated to the demand for better paths of transportation.

The State was recovering from the Panic of 1887. As the old century closed, California found itself with 1,485,053 people (a figure which was to increase by 60 percent in the next 10 years). A liberal immigration policy brought many new people, and the new century began with prosperity.

The petroleum and hydroelectric industries were developing. The land speculation of the immediate past was over temporarily, but the land was being turned to intensive fruit growing on a large scale. Rising wages and industrial expansion were the order of the day.

Also new on the scene but growing in public acceptance was the automobile. In 1896, the Duryea Motor Wagon Co. began manufacturing its product on an assembly line basis.

In 1903 the first transcontinental automobile trip was completed between San Francisco and New York City in 63 days. Two more successful trips were completed before the end of the year, and it became obvious that long trips could be made by automobile.

Henry Ford introduced his Model A that same year, and in 1908 the Cadillac Automobile Co. won an international prize for demonstrating the interchangeability of parts manufactured on an assembly line, not by the previous slow, skilled hand-fitting method of manufacture. The automobile was well on its way to replacing the horse and buggy.

Constant improvement of the automobile during the first 10 years of this century led to a rising demand for better roads. Col. Ed Fletcher of San Diego, later a State senator, who is credited with providing leadership for building the plank road, discussed this road-building fervor in his memoirs.

Fletcher was an auto enthusiast. He owned a 1906 model, 2-cylinder Maxwell roadster with leather dashboard and kerosene lights which he thought was the "acme of auto development."

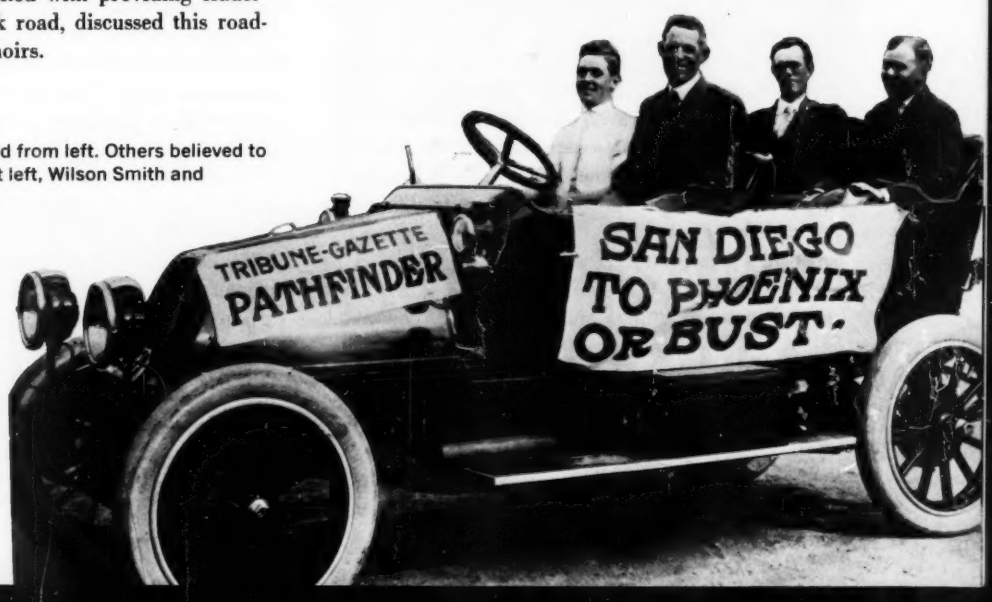
In 1908 the idea of an auto race from Los Angeles to Phoenix by way of San Diego and Yuma was conceived as the way to publicize the need for a highway. The course ran 320 miles and included a 46-mile detour around the north end of the dunes. Details of the race are skimpy, but Fletcher noted that it lasted 2 days.

San Diego and Los Angeles decided to go separate ways in sponsoring races because each city wanted to be the western terminus of the highway. (By 1910, Los Angeles had even greater reason for emerging the winner: The motion picture industry, seeking relief from monopolistic strictures in the East, had transferred to sunny southern California, had headquartered in suburban Hollywood, and film makers were shooting their film stories under almost continuous sun in the orange groves, on the ranches, and in the canyons.)

A strong rivalry developed, and in 1912 San Diego was challenged by "Lawrence of the Los Angeles Examiner" to race to Phoenix. He would leave from Los Angeles and San Diego's champion would leave from that city. Any route could be taken.

Fletcher entered his current automobile, a 4-cylinder, air-cooled Franklin. He and three others—driver Harry Taylor, Wilson Smith and F. L. Hamilton—climbed into the 20-horsepower touring car October 26, 1912, carrying the hopes of San Diego with them. The daring quartet selected a route through El Centro and *through* the dunes. Advance arrangements were made to have a team of six horses waiting to pull the car across the sand hills.

Before reaching the dunes, the Franklin bucked



The winner. Fletcher is second from left. Others believed to be Harry Taylor, the driver, at left, Wilson Smith and F. L. Hamilton in back seat.

—Photo Courtesy of Title Insurance and Trust Company, San Diego, California.

An exposed section of the old plank road in the Imperial Sand Hills near the California-Arizona border.

through brush for 30 miles and its radiator was clogged with twigs. This kept air from being drawn in to cool the engine, and when the hood was lifted the engine caught fire. The flames were put out with sand. The horses were hooked up. They towed the car and its occupants through a 4½-mile stretch of the dunes in an hour. Then Taylor tried the engine. It worked!

Daylight had been replaced by night when they got to the Colorado River near Yuma, and the last ferry had gone for the day. They spread blankets and seat cushions over the road bed of the Southern Pacific Railroad bridge to prevent tire punctures and eased across the bridge.

They came to a place where 2 dozen or more eycalyptus trees were down and had to chop a roadway through some of them. They crossed the Hassayampa and Agua Fria Rivers on railroad bridges.

On October 27, 19½ hours after starting out, the quartet pulled up to the Western Union office in Phoenix to find out if Lawrence had arrived. They learned that Lawrence's car had broken down in the desert between Blythe and Phoenix and he was unable to complete the trip.

Motor car racing in those days was an unfathomable combination of luck, ingenuity, and derring-do, but so was all early auto travel, especially across the dunes. Some early auto crossings were made by chopping and laying mats of brush on the sand, but these brushways soon were buried or blown away. Despite difficulties, communities in the area were determined to have a permanent crossing of the dunes.

Under Fletcher's leadership, San Diego donated timber and Imperial County paid the costs of freight hauling and food for laborers. Fifty men worked 6 months in 1914–1915. They constructed two parallel tracks on 6-foot ties which were 8 feet apart. Each track was 24 inches wide, consisting of three 2- by 8-inch planks.

The "auto railroad" was replaced with the plank road in 1916–1917 by the California Highway Commission. Stringers were made of 4- by 6-foot lumber, and 4-inch thick planks of random widths were used for cross pieces. The roadway was 8 feet wide and was reinforced with strap iron on each end and down the center, the remnants of which still are visible.

The roadway was prefabricated into sections which were hauled into place by four-mule teams. The surface of these sections was coated with asphalt. The roadway was not wide enough for passing, so narrow turnouts were constructed at the tops of hills. The car nearest the turnout was supposed to yield the right-of-way, but this led to some nasty disputes. If a wheel went off the narrow two-plank turnout, it might take hours to get the car back on the road.

The traveler was wise to have extra tires, gasoline, water, food, and tools. Often he waited for a caravan of cars to form up for safety in numbers. Sometimes enroute, when severe winds blotted out the roadway with sand, it was necessary to wait until the wind blew the sand off the road.

Visible sections of the plank road are being torn apart by recreationists in search of firewood, but at least one section of the old road is likely to survive. The Auto Club of Southern California has the section on permanent display at its courtyard in Los Angeles.

An asphalt surfaced road was completed in 1926, and travel through the dunes became routine. Now dune buggies with oversize tires scamper about over the sand hills and drive with ease alongside the remnants of the plank road.

The almost contemptuous ease with which recreationists now are able to take their motoring pleasure in this part of the once formidable California desert indeed belies the hazardous passage which so long balked the traveler across the southern public lands. □

The Mountain Comes to Mohammed

A new generation learns from pioneer life

SQUATTING on the desert floor, exposed to a sun that blazes and a wind that buffets, is an old cowboy line shack. Only history knows how many chilly gray dawns the old shelter has known, how many weary cattle hands have unrolled their blankets within its cheerless walls, how many cold breakfasts it has watched.

No longer does the shabby line shack sit where it was thrown together on public land, waiting for the occupants who made it a waystop after rounding up strays from dawn to dusk. Now the old "home on the range" graces a school playground in Moab, Utah, still desert country, where the visitors are schoolchildren who learn about their environment by contrasting the bleak shelter with their own comfortable homes.

When Mohammed couldn't go to the mountain in the old Arabic proverb, the mountain came to Mohammed. Dismantling the old cowboy line shack on nearby public land and reassembling it on the grounds of Moab's Helen M. Knight Elementary School is a modern day example of Mohammed and his mountain.

This opportunity for teachers to teach their pupils about environment in the real world, out-of-doors, began with the Environmental Education Advisory Committee of Grand County, Utah. BLM's Grand Resource Area manager in Moab, Marvin O. Jensen, is a member of the committee.

Other members hit upon the idea of bringing the mountain to Mohammed when Jensen told them about the cabin. Manpower for relocating the old cabin came from a half dozen members of the Moab High School Inter-Act Club, a community support organization.

The rough-hewn aspen logs made a cabin about 12 x 18 feet, about 10 feet tall, with one door and two windows. Over the rafters will be laid a new sod roof, that perennial shield from snow, rain, or sun. Rude and primitive the cabin is, but it provides an object lesson for the pupils.

Some of them, with BLM's help have selected native plants from nearby to landscape the cabin in a realistic setting. The school administrator plans to seed various kinds of vegetative cover near the cabin so as to develop areas where native animals (such as lizards and small mammals) can be kept.

These efforts to educate the nation's youth aim at instilling a greater appreciation of the environment and man's relationship to it.

If this increased appreciation does in fact result in wiser use of the nation's natural resources, then today's Mohammeds will indeed treasure the mountains, valleys, plains, water, minerals, and wildlife which are their heritage from the past, even as is the simple line shack now perched on the schoolgrounds in Moab. □

By WAYNE B. ERICKSON
Natural Resource Specialist
BLM District Office, Monticello, Utah

Inter-Act Club at work on the cabin.
—Photo Courtesy Moab Times-Independent.

THE EPSOM SALTS MONORAIL

28 miles of desert freighting carrying 5-ton loads

IT WAS ordinary-looking enough, the document received at the U.S. Government General Land Office in Independence, Calif., on June 9, 1922. An engineer's drawing, on heavy tracing linen, nearly 8 feet long by 18 inches wide. Even the size didn't cause the Register, one Oliver C. Harper, to raise an eyebrow.

Meticulously drawn by hand, neatly lettered, precisely scaled at 1,500 feet to the inch, and painstakingly labeled with a myriad of details, the document was an application for a right-of-way across public lands of the United States. The right-of-way was for a tram-road for mining purposes.

In this district of intense mining activity, particularly in the period preceding and immediately after World War I, such requests were common. The Trona Railroad, the Inyo Tram near Keeler, the Tidewater-Tonopah Line running east of Death Valley—all were built on public lands under permits such as the one sought.

The description of the line itself, however, may have caused the good Mr. Harper to do a second take. The tramroad was to be a monorail line across some 28 miles of the most rugged country imaginable. This then was the agency's introduction to the railroad which has been described variously as the "World's Fastest Monorail" and the "Epsom Salts Flyer."

This application was duly noted on the Land Office records, and on October 2, 1922, the application was approved by E. C. Finney, then First Assistant Secretary of the Department of the Interior. (The General Land Office was the Federal agency empowered to approve such proposed uses of public lands prior to 1946, when the Grazing Service and the General Land Office were merged to form the Bureau of Land Management.)

The railroad was to run from a terminal on the western side of Searles Lake, south of Trona, where it met the Trona Railroad across the dry (sometimes) bed of Searles Lake, through Layton Canyon in the Slate Range, across the Panamint Valley, up the steep grades of Wingate Pass and on across Wingate Wash almost to the Owlshead Mountains.

Why a railroad in this forbidding country? Why a monorail?

Years before, an old prospector named Joe Ward had discovered a deposit of epsomite or, more commonly, the magnesium sulphate called epsom salts, near a spring in the Panamints. His burros had rolled in the white powdery stuff and, curious, Joe had it assayed. Considered worthless or too hard to get out due to the difficulty of transportation, the deposit lay there, probably rediscovered and forgotten many times.

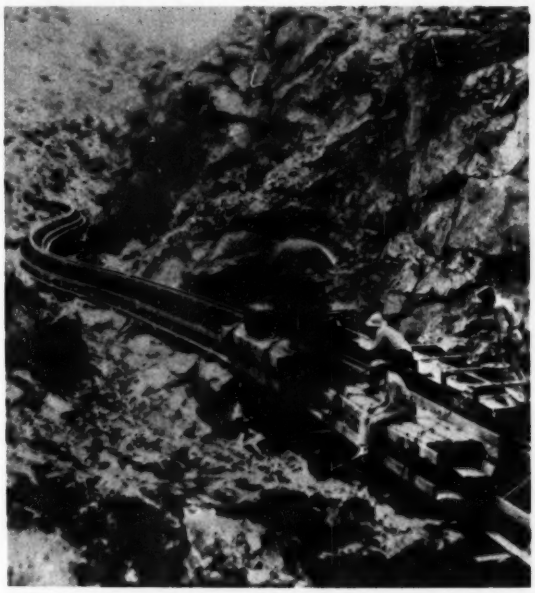
Then about 1917 a Los Angeles florist, Thomas H. Wright, who prospected as a hobby, rediscovered the deposit, again while following his burro to the spring. Wright interested others in exploiting the deposit, and eventually formed a stock company, The American Magnesium Co., of which he became president. The next job, of course, was to mine the deposit and bring the material out to a plant that would be operated near Los Angeles, at Wilmington. The product? Bath salts.

There were roads into the area, from Barstow to the south, woefully inadequate roads, over sandy washes and rocky passes. These roads were extremely inhospitable to the early motor trucks of the day.

Truck tires then were treadless, solid rubber, and they spun easily in sand or mud. Primitive cooling systems (the water pump was yet to become a regular feature of motor vehicles) caused trucks to overheat easily. On difficult terrain, trucks traveled in low gear at 10 to 15 miles per hour, and they were quite likely to overheat in a short time. Truck transport obviously

By BILL FLINT
Public Information Officer
BLM District Office
Riverside, Calif.

Some A frames were double braced as line crossed drainage courses which were grudgingly lined with rip-rap.



Engine and one-car train haul timbers through Layton Canyon during construction. —Photo Courtesy O. N. Cole, Trona, Calif.

was not a practical solution to the problem of getting the mineral deposit from recovery to manufacturing site.

A railroad was decided upon after a great deal of study and surveying in 1922–1923. The closest existing railroad was at Trona, about 30 miles to the west, so the route leading to Trona was chosen as the most direct link to an existing railroad, even though it presented obstacles which no doubt would have discouraged a less determined group.

The high costs of construction over a formidable course presenting problems in steep grades and sharp curves through canyons were all problems which could be solved, Wright reasoned, with a monorail, a rail transport concept already in use for several decades in Europe and Africa.

One rail instead of two would be only half as expensive. The prohibitive costs of grading a roadbed would be removed by using rail frame supports of varying weight to adjust to the terrain. A single track would lend itself to sharp turns more readily than two tracks laid directly on a roadbed.

Begun as much as an experiment to be applied to other uses as to the job at hand, Wright and his engineer, R. V. Leeson, designed the monorail and its equipment. They received a patent on the design on June 23, 1923. Then they asked the Trona Railroad to build a spur from its siding at Magnesia across the bed of Searles Lake, to the bottom of Layton Canyon. American Trona Co., owners of the Trona Railway, agreed, but for some reason the spur was never built. Nevertheless, construction of the Epsom Salts Monorail began.

The road was built upon 8-foot ties laid parallel 8 feet apart. The ties were, for the most part, split logs laid flat side down, with rough hewn flats on top to take the supporting legs of the A-frame trestles. Vertical members, 6- x 8-inch boards cut to varying heights to conform to ground contour, supported a 6- x 8-inch runner on which was mounted the single rail.

The rail was of standard design and probably weighed about 55 pounds to the yard, although it has been reported at weights of 50, 65, 70, and 80 pounds. Judging from the frugality employed in the rest of the construction, it seems likely that a lighter, less expensive weight was chosen. Whatever its size, the rail was without doubt the most durable single item of the whole structure, the rest being Douglas fir spiked together. Some of the 6- x 8-inch uprights were fabricated by spiking two smaller sized pieces together to get the needed dimensions.

Since the engine and cars would ride the rail pack-saddle fashion, 2- x 8-inch side rails were added, nailed to horizontal cross pieces affixed to the A frames. These side rails were to contact rollers on the engines and

cars to prevent sway. The side rails weren't faced with metal, however, an oversight which was to cause much trouble later.

By September of 1923, the completed road reached 16 miles, and trains were hauling construction material in to complete the line. The first engine, used during construction, was powered by a battery driven electric motor. Unable to pull sufficient weight, it was discarded in favor of gasoline driven engines powered by converted Fordson tractors. A total of seven of these were built for use on the line.

The road was completed in 1924, and for a time things apparently went well. Despite the flimsy construction, the company was able to haul out enough material to keep the plant going, at least after a fashion. Soon though, the high grade material, which originally needed only to be scraped up with hoes from the surface, gave out, and the plant at Wilmington began to receive loads which were heavy with sand. This was separated from the useful salt and piled around the plant. Lest it be thought that pollution has only recently been noticed, it is recorded that the city fathers complained at the eyesore created.

Meanwhile, matters on the railroad became more complicated. The hot desert sun warped timbers, occasional desert cloudbursts washed away sections of track, and the heavy trains on the too-weak trestles took their toll. Moreover, the poor braking system and the weak supporting members required loads far lighter than the capacities expected, so too little material reached Wilmington to keep the plant going.

A new engine, gasoline-electric combination, supplying electric power to motors on both engine and cars was designed. This additional motive power was expected to be able to haul much heavier loads than the one-engine, one-car trains possible with the old Fordson engines. By this time, however, the side rails were in splinters, the nails and screws of supporting members had loosened, and the track would not support the weight of the new engine. It is reported that it pushed the whole track down through the crust of Searles Lake.

Production slowed to a trickle, and it became evident that the plant could not keep going at a profit. Legal problems also beset the operators of the venture, with suits and countersuits being filed as promoters fought for control of the stock.

In 1926 the last train creaked its way to the siding at Searles Lake and production was halted. The property was offered for sale in April of 1928, but no one was interested in buying.

The monorail was abandoned, the workings left idle. It quickly fell victim to the harsh climate of the region: sun, sand, cloudburst in the narrow canyons, as well as souvenir hunters, or campers needing wood for a fire. The single rail was removed and sold for scrap prior to World War II, and the long running beam supporting it disappeared along with the side rails. There are remains of buildings in the region whose timbers bear a suspicious resemblance to those used in construction of the railroad. The ties and pieces from which the A frames were built, probably too short to be of any salvage value, remained, many to this day.

The eastern 20 miles of the road today lie within a live gunnery range, operated by the U.S. Navy headquartered at China Lake. There is now a locked gate at the western end of Layton Canyon, where the track entered the Slate Range to begin its tortuous crossing. The Navy Department emphasizes that most of the right-of-way of this old railroad is now within a live bombing and gunnery range which is dangerous to enter, and that the area is closed to public use and travel.

The entire route is passable only by four-wheel drive vehicle, and the round trip takes 12 hours. Remains of the old trestles, now mostly in shreds, are visible along the straight-as-a-string right of way where it crosses Searles Lake, bleached, salt encrusted, rotting in the desert sun.

In places in Layton Canyon, and at other points subject to heavy drainage, all traces have disappeared. In others, the A frames still lie almost in their original positions, or stand like squat stick men guarding the desert's treasure. Very little remains at the mine workings, but the last production of 1925 can still be seen in rotting burlap bags, where they were left when activity ceased.

In reading of the almost insurmountable problems of construction, poring over the old photos of actual operations, and viewing the silent remains of this million dollar effort, one is struck with wonderment that it could have actually been done.

Any high school lad could predict failure for a railroad carrying 5-ton loads on trains using wooden slats as a part of the track! Hindsight being what it is, he could also say "if only they had built on metal trestles . . . ," and it seems that the number of nails used in construction would almost have provided enough iron for this exciting possibility!

Today, great care is required in driving along the old right-of-way to avoid them. Nevertheless, this is the way it was done and, doomed from the start, the "Epsom Salts Monorail" came to its obvious end. It probably couldn't have lasted more than another couple of years in any event, for after that black Friday in October of 1929, who could afford bath salts? □

Plush Diamonds Capture the Sun's Rays

Sunstone hunting is a personal thing

INSTEAD of looking up to find the sun, rockhounds in southern Oregon examine the desert floor. There, scattered on the surface of 20,000 acres of high desert country, are found crystalline mineral specimens called "sunstones" because they seem to capture the sun's rays and reflect them like glittering points of light.

The sunstone has scant commercial value. However it can be easily faceted, meaning it can be cut to enhance beauty and brilliance. A few collectors work good specimens into costume jewelry such as cuff links and tie tacks.

The stones also can be "tumbled" in a small rotating mill, stone against stone, which rounds them off for use in pendants. The crystals vary in color from clear to pink or green.

Only north of Plush, Oreg., some 25 miles are sunstones known to exist. Early collectors slangily called the sunstones "diamonds," so the locale earned for the sunstones the fond nickname "Plush diamonds."

Sunstones were formed in the Tertiary geologic period some 70 million years ago. Lava flow heated rocks containing aluminum, silica, potassium, sodium, and calcium. When these rocks cooled, the elements fused and crystallized.

Old area maps show the name "Sunstone Mine," but no actual mining claims were filed until 1970. Recreationists then requested that BLM set aside an area for the benefit of rockhounds and for the public for recreation purposes. BLM has issued a classification order setting aside 2,600 acres for these purposes.

Sunstone hunting is a personal thing. The desert to the initiated, experienced rockhounder is neither hostile nor friendly, just neutral. Lack of daily conveniences keep casual tourists from visiting the locale, but the advent of pickup campers and camp trailers have made the trip more inviting. □

By MAURICE ZIEGLER
Lost River Area Manager
BLM District Office
Lakeview, Oreg.

This is a compilation of the most up-to-date information possible on up-coming sales of public lands by land offices of the Bureau of Land Management. For details of land descriptions, prices, and other information pertinent to sales, you must write the individual land office concerned. In most cases, there are adjoining landowners who have statutory preference rights and may wish to exercise them to buy the land. Sales notices will point out, insofar as possible, problems relating to (1) access, (2) adjoining owner preference rights, (3) small-tract sales limitation of one per customer, and other pertinent information. When possible, all sales are scheduled far enough in advance so ample notice can be given in Our Public Lands. Sales listed can be canceled on short notice for administrative and technical reasons. A listing of BLM land offices with addresses is found on the opposite page.

ALASKA

Public lands in Alaska are not available for sale at this time. Future public land sales will be announced in this space when scheduled.

ARIZONA

10 A, 1 mile northwest of Ajo, Ariz. Electricity available, no developed water, accessible by county road. Land nearly level, 2 small washes cross property. Elev. 1,760 ft. Approx. appraisal $250 an acre.

MONTANA

40 acres, 25 air miles south of Chinook, Blaine County. Low round-topped knolls and a shallow drainage with a deeply cut channel; topography quite gentle. Clay soils developed from decomposing shale. Western wheatgrass dominates the grass composition. No permanent water. Legal access by county road across southeast corner. Appraised $800 plus publication cost. Sale Feb. 24, 1972.

81.20 acres, 25 air miles south of Chinook, Blaine County. Land is part of gentle slope on north face of large hill. Slope is severely dissected by deep channeled coulees in bottom of larger gently sloped drainages. Ridges between drainages have relatively flat tops. Soil is shallow, quite stony. Vegetation is bluebunch wheat, rough fescue, carex, and associated grasses. No permanent water; no legal access. Appraised $2,190 plus publication cost. Sale Feb. 24, 1972.

40 A, 24 miles north of Great Falls. 10 to 15 A level upland, remaining steep slopes cut by coulees. Shallow clay soils. Short grasses, brushy plants only in some draws, quite sparse vegetation in steeper slopes. No water nor legal access. Appraised $640 plus advertising cost. Sale February 24, 1972.

160 A, 26 miles north of Great Falls. Coulees and ridges. Silty clay soil. Native short grass, patches of brushy plants in some draws. No water nor legal access. Appraised $2,560 plus advertising cost. Sale February 24, 1972.

3 isolated parcels 20 miles north of Terry, Mont. Silty to sandy soils. Western wheatgrass, bluebunch wheatgrass, little bluestem, green needlegrass, needle and thread grass on uplands. Draws contain chokecherry, sage, ash, skunkbrush, juniper. No water nor legal access. Parcel 1, 40 A, appraised $900. Parcel 2, 120 A, appraised $2,100. Parcel 3, 40 A, appraised $700. Plus publication cost for each. Sale February 24, 1972.

40 isolated A, 18 air miles west of Broadus, Mont., near Sonnette. Moderately steep to steeply rolling. Mostly silty, some sandy soil and shale loam. About 8 A nearly pure grassland. No water nor legal access. Appraised $1,000 plus publication. Sale February 24, 1972.

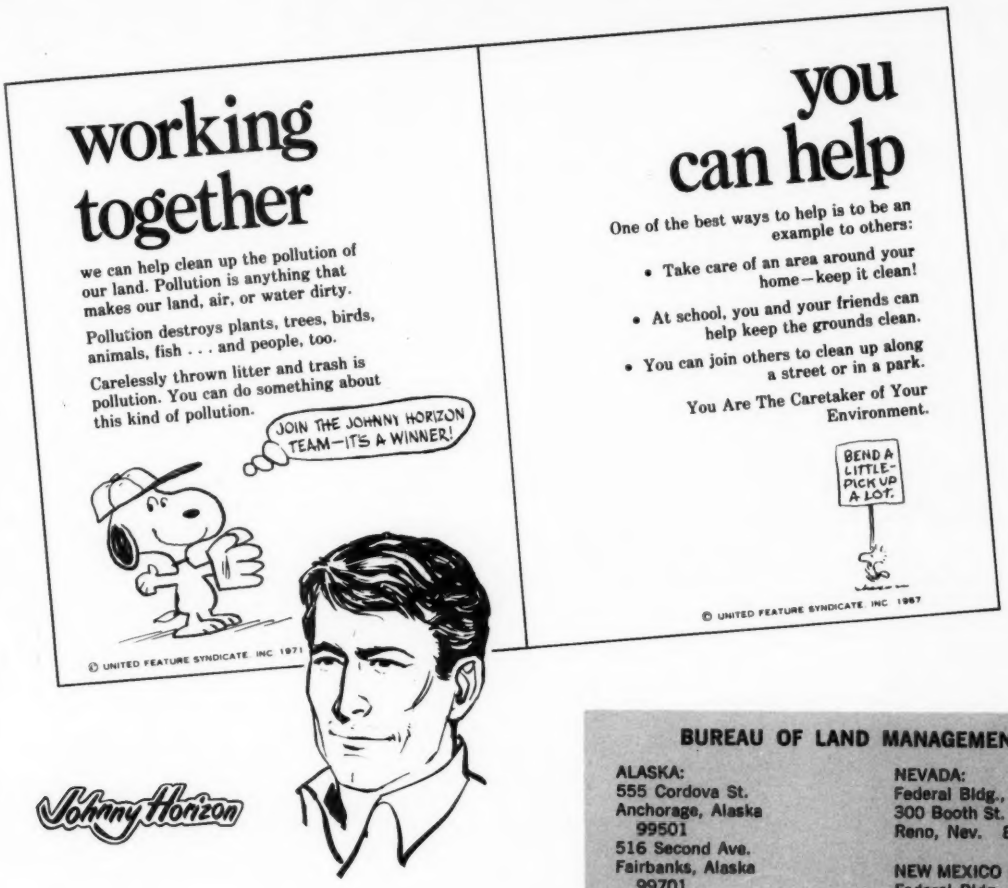
NEW MEXICO

40 A, 3 miles northwest of Radium Springs in Doña Ana County. Hilly. Gravely soil grazing land. No utilities. No legal, poor physical access. Est. $20 to $25 per acre.

40 A, 1 mile west of Gallup. Rolling to nearly level in rural residential area. Suitable for residential development. Accessible from Highway 66 over ½ mile of graded county road. Vegetative cover native grasses and shrubs. Electricity and telephone available. No city water but wells reach water at reasonable depth. Value may run more than $500 per acre because of residential potential.

UTAH

310.79 A, gently sloping undulating bench north of and overlooking Virgin River and community of Rockville in Washington County. Zion National Park borders on north, private land on other three sides. Fairly large canyon crosses northwest portion. Power line crosses northwest corner. Southern part sharp breaking cliffs separating river valley from bench land. Medium depth soils on more level portions, shallow and rocky over hills and in canyon. Many large scattered boulders. Scattered juniper trees, blackbrush, sparse native grasses. No water nor improvements. Access by State and graded dirt road to within ¼ mile. No legal access. Sale March 14, 1972.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Johnny Horizon

2 isolated tracts 6 miles southwest of Delta, Millard County. Accessible by public roads, level with some hummocks, heavy alkaline clay loam. Greasewood, fourwing saltbrush, saltgrass, halogeton, various weeds. 80 A appraised $2,800. 40 A appraised $1,400, crossed by drainage canal, fenced east, north, west sides. Power line transverses both tracts. Telephone line crosses 80 A tract. No other improvements or utilities. Sale March 14, 1972.

WASHINGTON

2 parcels 60 miles east of Goldendale, Klickitat County. 120 A, steep canyon terrain, year-round springs, intermittent stream. Appraised $2,400. 120 A, steeply terraced, appraised $3,000. Powerline crosses. Both sparsely vegetated, unimproved.

WYOMING

360 A, 3 tracts 24 miles northwest of Pinedale, Sublette County. Private lands surround. Steeply sloping to nearly level. One crossed by short section of South Beaver Creek. No legal access. Query Wyoming State Office for costs, other details. Sale after February 1, 1972.

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Room 334
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Boise, Idaho 83702

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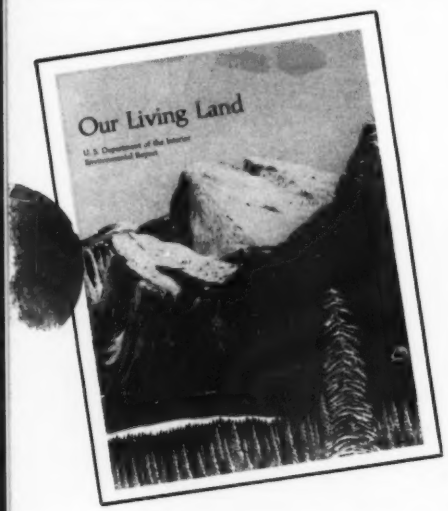

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